

Claims

1. An injector for injecting fuel that is at high pressure into the combustion chambers of an internal combustion engine, having a control part (4) guided movably in a housing (2), which control part is movable vertically up and down, actuator-actuated, in a bore (3) of the housing (2) of the injector (1), and the control part (4) is actuatable by means of an actuator element which moves the control part (4) into a position that enables the fuel delivery into a nozzle inlet (10, 11), characterized in that the valve chamber (8, 38) is opened and closed during the injection phases (41, 42) by control edges (36, 37) toward the control part, and a pressure relief of the injection nozzle system (11, 12, 34) is effected via leak fuel slides (13, 21) embodied on the control part (4).
2. The injector of claim 1, characterized in that an actuator that triggers two switching stages is disposed above the control part (4).
3. The injector of claim 1, characterized in that during the preinjection phase (41), the head region (6) of the control part (4) is placed in contact with a second control edge (37) on the housing (2) of the injector.
4. The injector of claim 1, characterized in that during the main injection phase (42), the head region (5) of the control part (4) is placed in a middle position relative to the valve chamber (8, 38) surrounding it.

5. The injector of claim 4, characterized in that the diameter graduation of the valve chamber diameter (9) to the head region diameter (6) acts as a throttle and limits the flow in the middle position of the head region (6) of the control part (4) in the valve chamber (8, 38).
6. The injector of claim 1, characterized in that the coincidence of the stroke paths h_1 , h_2 at the head region (6) of the control part (4) is equal to that of the stroke paths h_3 , h_4 of the slide elements (13, 21) of the control part (4) on the downstream side.
7. The injector of claim 1, characterized in that the injection nozzle system (11, 12, 34), after the preinjection phase (41), is pressure-relieved to the leak fuel line (16) via an annular chamber (22) on the lower slide element (21).
8. The injector of claim 1, characterized in that the injection nozzle system (11, 12, 34), after the main injection phase (42), is pressure-relieved via an annular leak fuel chamber (14) provided on the upper slide element (13).
9. The injector of claim 1, characterized in that all the guide and seat diameters of the control part (4) have the same diameter (7), and the control part (4) is force- balanced.